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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Technology Center 2100

Application Number: 10/616,848
Filing Date: July 10, 2003
Appellant(s): GALLAGHER ET AL.

Gallagher et al.
International Business Machines Corporation of Armonk, New York

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 19, 2007 appealing from the Office action mailed September 13, 2006.

1. Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

2. Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. Status of Claims

The statement of the status of claims contained in the brief is correct.

4. Status of Amendments After Final

No amendment after final has been filed after the Final Office Action of September 13, 2006.

5. Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

6. Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

7. Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

8. Evidence Relied Upon

US 6,314,525	Mahalingham et al.	Nov. 6, 2001
US 7,007,190	Kurapati et al.	Feb. 28, 2006

9. Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahalingham et al. (US 6,314,525) in further view of Kurapati et al. (US 7,007,190).

In regard to claim 1, Mahalingham et al. teach a method in a device driver for handling a failure of a primary adapter in a data processing system, the method comprising:

monitoring the primary adapter for the failure (*MULTISPAN driver continuously monitors the activity of bound adapters, fig. 4, 508, col. 11 lines 49-63)*; and

responsive to detecting the failure, switching to a standby adapter handled by the device driver (*when primary fails, one of the adapter in "READY" state is changed to "IN_USE", fig. 2, 62, col. 11 lines 32-48).*

Mahalingham et al. does not explicitly teach the method of queuing data in a data queue used by the primary adapter and in response to detecting a failure wherein the standby adapter uses the data in the data queue.

Kurapati et al. disclosed the method of data replication for redundant network components by implementing a shared memory queue (*fig. 6, 120, col. 9 lines 10-19)* and heap memory queue of message queue (*fig. 6, 110, col. 9 lines 10-12),* which may be designated to provide data to a specific process (*fig. 2, 50).* The shared memory also provides efficient communication between processes by allowing one process to write data to shared memory and another process to read the data from shared memory (*fig. 2, 50, 51, col. 11 lines 55-58).* Furthermore, in the case of a detection of an internal fault or defective process (*col. 13 lines 49-54)* the standby component uses the data of the active component by receiving a replication of that data before it enters active mode. The data replicator sends replication data to network component 12b (*fig. 11, 230, col. 13 lines 56-63).*

It would have been obvious to modify the method of Mahalingham et al. by adding Kurapati et al. method of data replication for redundant network components. A person of ordinary skill in the art at the time of applicant's invention would have been motivated to make the modification because it would provide a reliable data replication (*col. 2 lines 18-20).*

In regard to claim 2, Mahalingham et al. disclosed the method of claim 1, wherein the failure is an occurrence of at least one of a network problem and a port problem (*network adapter has not received any packets for an extended period of time, col. 11 lines 49-63).*

In regard to claim 3, Mahalingham et al. disclosed the method of claim 1, wherein the primary adapter is on a first port and the standby adapter is on a second port and wherein the switching step comprises:

switching from the first port to the second port to switch to the standby adapter (*If failed NIC was a primary adapter, secondary NIC become the primary adapter, fig. 2, 62, col. 11 lines 18-25)*.

In regard to claim 4, Mahalingham et al. disclosed the method of claim 3, wherein the first port is assigned an alternative media access control address prior to a switch from the primary adapter to the standby adapter and wherein the switch from the first port to the second port is made by assigning the second port to an alternative media access control address (*MULTISPAN reset and changes the address of the primary adapter to the address generated from Virtula Network Address and changes the network address of secondary adapter to the MULTISPAN Virtual Network Address and uses it as the primary adapter, col. 14 lines 5-22)*.

In regard to claim 5, Mahalingham et al. disclosed the method of claim 3 further comprising: initiating a soft reset of the first port (*if adapter is fixed it is changed to "READY" state, col. 12 lines 10-14)*.

In regard to claim 6, Mahalingham et al. disclosed the method of claim 1, wherein the primary adapter is a network adapter (*network interface card, NIC, fig. 1, 18, col. 5-22)*.

In regard to claim 7, Mahalingham et al. disclosed the method of claim 1, wherein the primary adapter is a graphics adapter (*PCI slots, fig. 14A, 1670, col. 24 lines 43-53).*

It is inherent that peripheral component interconnect (PCI) was used for older video cards or graphic adapter (*http://en.wikipedia.org/wiki/Graphips_adapter* 3/13/2006).

In regard to claim 8, Mahalingham et al. disclosed a data processing system for handling a failure of a primary adapter in a data processing system, the data processing system comprising:

monitoring means for monitoring the primary adapter for the failure (*MULTISPAN driver continuously monitors the activity of bound adapters, fig. 4, 508, col. 11 lines 49-63)*; and

switching means for switching to a standby adapter (*when primary fails, one of the adapter in "READY" state is changed to "IN_USE", fig. 2, 62, col. 11 lines 32-48)* handled by the device driver responsive to detecting the failure (*MULTISPAN driver, fig. 4, 508, col. 11 lines 26-31).*

Mahalingham et al. does not explicitly teach the method of queuing data in a data queue used by the primary adapter and in response to detecting a failure wherein the standby adapter uses the data in the data queue.

Kurapati et al. disclosed the method of data replication for redundant network components by implementing a shared memory queue (*fig. 6, 120, col. 9 lines 10-19)* and heap memory queue of message queue (*fig. 6, 110, col. 9 lines 10-12),* which may be designated to provide data to a specific process (*fig. 2, 50).* The shared memory also provides efficient communication between processes by allowing one process to write

data to shared memory and another process to read the data from shared memory (*fig. 2, 50, 51, col. 11 lines 55-58).* Furthermore, in the case of a detection of an internal fault or defective process (*col. 13 lines 49-54)* the standby component uses the data of the active component by receiving a replication of that data before it enters active mode. The data replicator sends replication data to network component 12b (*fig. 11, 230, col. 13 lines 56-63).*

Refer to claim 1 for motivation.

In regard to claim 9, Mahalingham et al. disclosed the data processing system of claim 8, wherein the failure is an occurrence of at least one of a network problem and a port problem (*network adapter has not received any packets for an extended period of time, col. 11 lines 49-63).*

In regard to claim 10, Mahalingham et al. disclosed the data processing system of claim 8, wherein the primary adapter is on a first port and the standby adapter is on a second port and wherein the switching means comprises:

means for switching from the first port to the second port to switch to the standby adapter (*If MULTISPAN driver detects failed NIC primary adapter, secondary NIC become the primary adapter, fig. 2, 62, col. 11 lines 18-25).*

In regard to claim 11, Mahalingham et al. disclosed the data processing system of claim 10, wherein the first port is assigned an alternative media access control address prior to a switch

from the primary adapter to the standby adapter and wherein the switch from the first port to the second port is made by assigning the second port to an alternative media access control address (*MULTISPAN reset and changes the address of the primary adapter to the address generated from Virtula Network Address and changes the network address of secondary adapter to the MULTISPAN Virtual Network Address and uses it as the primary adapter, col. 14 lines 5-22).*

In regard to claim 12, Mahalingham et al. disclosed the data processing system of claim 10 further comprising: initiating means for initiating a soft reset of the first port (*if any adapter including the primary adapter is fixed it is changed to "READY" state, col. 12 lines 10-14).*

In regard to claim 13, Mahalingham et al. disclosed the data processing system of claim 8, wherein the primary adapter is a network adapter (*network interface card, NIC, fig. 1, 18, col. 5-22).*

In regard to claim 14, Mahalingham et al. disclosed the data processing system of claim 8, wherein the primary adapter is a graphics adapter (*PCI slots, fig. 14A, 1670, col. 24 lines 43-53).*

It is inherent that peripheral component interconnect (PCI) was used for older video cards or graphic adapter (http://en.wikipedia.org/wiki/Graphips_adapter 3/13/2006).

In regard to claim 15, Mahalingham et al. disclosed a computer program product in a recordable-type medium for handling a failure of a primary adapter in a data processing system, the computer program product comprising:

second instructions for monitoring the primary adapter for the failure (*send "probe" packets with in a MultiSpan group, col. 4 lines 41-58)*; and

third instructions for switching to a standby adapter (*when primary fails, one of the adapter in "READY" state is changed to "IN_USE", fig. 2, 62, col. 11 lines 32-48)* handled by the device driver responsive to detecting the failure (*MULTISPAN driver, fig. 4, 508, col. 11 lines 26-31).*

Mahalingham et al. does not explicitly teach the method of queuing data in a data queue used by the primary adapter and in response to detecting a failure wherein the standby adapter uses the data in the data queue.

Kurapati et al. disclosed the method of data replication for redundant network components by implementing a shared memory queue (*fig. 6, 120, col. 9 lines 10-19)* and heap memory queue of message queue (*fig. 6, 110, col. 9 lines 10-12),* which may be designated to provide data to a specific process (*fig. 2, 50).* The shared memory also provides efficient communication between processes by allowing one process to write data to shared memory and another process to read the data from shared memory (*fig. 2, 50, 51, col. 11 lines 55-58).* Furthermore, in the case of a detection of an internal fault or defective process (*col. 13 lines 49-54)* the standby component uses the data of the active component by receiving a replication of that data before it enters active mode. The data

replicator sends replication data to network component 12b (*fig. 11, 230, col. 13 lines 56-63)*.

Refer to claim 1 for motivational statement.

In regard to claim 16, Mahalingham et al. disclosed the computer program product of claim 15, wherein the failure is an occurrence of at least one of a network problem and a port problem (*network adapter has not received any packets for an extended period of time, col. 11 lines 49-63)*.

In regard to claim 17, Mahalingham et al. disclosed the computer program product of claim 15, wherein the primary adapter is on a first port and the standby adapter is on a second port and wherein the second instructions comprise:

sub-instructions for switching from the first port to the second port to switch to the standby adapter (*If MULTISPAN driver detects failed NIC primary adapter, secondary NIC become the primary adapter, fig. 2, 62, col. 11 lines 18-25)*.

In regard to claim 18, Mahalingham et al. disclosed the computer program product of claim 17, wherein the first port is assigned an alternative media access control address prior to a switch from the primary adapter to the standby adapter and wherein the switch from the first port to the second port is made by assigning the second port to an alternative media access control address (*MULTISPAN reset and changes the address of the primary adapter to the address generated from Virtula Network Address and changes the network address of secondary adapter*

to the MULTISPAN Virtual Network Address and uses it as the primary adapter, col. 14 lines 5-22).

In regard to claim 19, Mahalingham et al. disclosed the computer program product of claim 17 further comprising:

fourth instructions for initiating a soft reset of the first port (*if any adapter including the primary adapter is fixed it is changed to "READY" state, col. 12 lines 10-14).*

In regard to claim 20, Mahalingham et al. disclosed the computer program product of claim 15, wherein the primary adapter is a network adapter (*network interface card, NIC, fig. 1, 18, col. 5-22).*

In regard to claim 21, Mahalingham et al. disclosed the computer program product of claim 15, wherein the primary adapter is a graphics adapter (*PCI slots, fig. 14A, 1670, col. 24 lines 43-53).*

It is inherent that peripheral component interconnect (PCI) was used for older video cards or graphic adapter (*http://en.wikipedia.org/wiki/Graphips_adapter* 3/13/2006).

In regard to claim 22, Mahalingham et al. disclosed a server data processing for obtaining cultural context information from a client, the server data processing system comprising:

a bus system (*network backbone, fig. 3, 12, col. 7 lines 61-64)*;

a communications unit connected to the bus system (*server computer, fig. 3, 10, col. 6 lines 21-39)*;

a memory connected to the bus system, wherein the memory includes a set of instructions (*software modules, col. 6 lines 21-39)*; and

a processing unit (*MULTISPAN processes, col. 6 lines 46-57)* connected to the bus system, wherein the processing unit executes instructions for a device driver to monitor the primary adapter for the failure and, switch to a standby adapter handled by the device driver in response to detecting the failure (*perform a transparent fail-over when primary adapter fails, col. 6 lines 46-57).*

Mahalingham et al. does not explicitly teach the method of queuing data in a data queue used by the primary adapter and in response to detecting a failure wherein the standby adapter uses the data in the data queue.

Kurapati et al. disclosed the method of data replication for redundant network components by implementing a shared memory queue (*fig. 6, 120, col. 9 lines 10-19)* and heap memory queue of message queue (*fig. 6, 110, col. 9 lines 10-12),* which may be designated to provide data to a specific process (*fig. 2, 50).* The shared memory also provides efficient communication between processes by allowing one process to write data to shared memory and another process to read the data from shared memory (*fig. 2, 50, 51, col. 11 lines 55-58).* Furthermore, in the case of a detection of an internal fault or defective process (*col. 13 lines 49-54)* the standby component uses the data of the active component by receiving a replication of that data before it enters active mode. The data

replicator sends replication data to network component 12b (*fig. 11, 230, col. 13 lines 56-63).*

Refer to claim 1 for motivational statement.

10. **Response to Argument**

Applicant points out that the 35 U.S.C. 103(a) rejections in regard to Mahalingham et al. (US 6,314,525) in further view of Kurapati et al. (US 7,007,190) raised the following issues:

1. Proposed combination does not teach all of the features of claim 1 and similar independent claims 8, 15 and 22.

Applicant stated that examiner admits that Mahalingham does not teach the claimed feature of "queuing data in a data queue used by the primary adapter" and "wherein the standby adapter uses the data in the data queue". Examiner would like to clarify that Mahalingham does in fact disclosed the primary and secondary adapter comprising a queue used by each of the primary and secondary adapter (*fig. 11, 1356b, 1358b)* but admits that it's not the same data queue as presented in applicant's invention. The process of queuing data is taught by Kurapati shared memory queue. Applicant also stated that the data queues in Kurapati are not used in any kind of adapter, primary or standby. As disclosed in the final office action, the adapters, primary and standby, are taught by Mahalingham primary and secondary NIC (*network interface card)* having their own respective queue. Kurapati reference is presented to cure the deficiencies of queuing data used by a first device for the used of a second device in the case of a failure. Kurapati cure this deficiency by disclosing a data replicator using the replicate data

stored in a shared memory database from a network component to a mate network component (*col. 2 lines 15-20).* Kurapati discloses the network component and a mate network component as the active and standby network components (*fig. 10, 12a, 12b*) replicating data stored in the shared memory (*fig. 13a, 51a).* Finally, applicant stated that Kurapati teaches of a network component switching form active mode to standby mode but does not disclosed an adapter. Examiner would like to clarify again that Mahalingham and not Kurapati teach the primary and secondary adapters.

2. No proper teaching, suggestion or motivation to combine the references.

Applicant stated that Mahalingham is related to software and not to the claimed primary adapters, which are hardware. It is clearly shown in Fig. 11 of Mahalingham that the NIC (*network interface card)* utilizing software instructions and processes to appear as a single NIC to an operating system but in no way to one skill in the art to interpret as not a hardware component. Furthermore, applicant stated that Mahalingham has no need for data replication among software components and the fact that Kurapati teaches an advantage regarding data replication has nothing to do with the methods and devices taught in Mahalingham. Mahalingham reference is drawn to a system providing a seamless redundant failover should a primary card fails. Kurapati reference is drawn to replicate redundant data failover seamlessly should a fault occur to a primary component to prevent data loss. The two references operate in the same field of endeavor to provide failover in a redundant system. Kurapati provides advantageous of providing redundant data loss thus it would be advantageous to combine the references.

3. No teaching, suggestion or motivation exists to combine the references because each reference represents a complete solution to the problem that each solves.

Applicant stated again that Mahalingham has no need for redundant software components to exchange replicated information because Mahalingham reroutes the same information packet from one adapter to another. Because Mahalingham has no need for replicated information and are comfortable using two separate queues for each network component does not prohibit one skilled in the art to combine the queuing of Kurapati. This argument would be similar to one in the communication technology arguing that a conventional telephone has no need to remove the wire from the handset. Although there would be no need, this does not prohibit the motivation to combination wireless technology and remove the wire from the handset to produce a wireless telephone.

For the reasons mentioned above, examiner maintains the U.S.C. 103 rejection.

11. Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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